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EXAMINER	
SHACKELFORD, H	
ART UNIT	**PAPER NUMBER**
3501	9

C5M1/0207

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DATE MAILED: 02/07/96

This is a communication from the examiner in charge of your application.
COMMISSIONER OF PATENTS AND TRADEMARKS

☑ This application has been examined ☑ Responsive to communication filed on 10/10/95 ☐ This action is made final.

A shortened statutory period for response to this action is set to expire 3 month(s), — days from the date of this letter.
Failure to respond within the period for response will cause the application to become abandoned. 35 U.S.C. 133

Part I THE FOLLOWING ATTACHMENT(S) ARE PART OF THIS ACTION:

1. ☑ Notice of References Cited by Examiner, PTO-892.
2. ☐ Notice of Draftsman's Patent Drawing Review, PTO-948.
3. ☐ Notice of Art Cited by Applicant, PTO-1449.
4. ☐ Notice of Informal Patent Application, PTO-152.
5. ☐ Information on How to Effect Drawing Changes, PTO-1474.
6. ☐ _____.

Part II SUMMARY OF ACTION

1. ☑ Claims 1-5, 11-17 are pending in the application.

   Of the above, claims _____ are withdrawn from consideration.

2. ☑ Claims 6-10 have been cancelled.

3. ☐ Claims _____ are allowed.

4. ☑ Claims 1-5, 11-17 are rejected.

5. ☐ Claims _____ are objected to.

6. ☐ Claims _____ are subject to restriction or election requirement.

7. ☐ This application has been filed with informal drawings under 37 C.F.R. 1.85 which are acceptable for examination purposes.

8. ☐ Formal drawings are required in response to this Office action.

9. ☐ The corrected or substitute drawings have been received on _____. Under 37 C.F.R. 1.84 these drawings are ☐ acceptable; ☐ not acceptable (see explanation or Notice of Draftsman's Patent Drawing Review, PTO-948).

10. ☐ The proposed additional or substitute sheet(s) of drawings, filed on _____, has (have) been ☐ approved by the examiner; ☐ disapproved by the examiner (see explanation).

11. ☑ The proposed drawing correction, filed 10/10/95, has been ☑ approved; ☐ disapproved (see explanation).

12. ☐ Acknowledgement is made of the claim for priority under 35 U.S.C. 119. The certified copy has ☐ been received ☐ not been received ☐ been filed in parent application, serial no. _____; filed on _____.

13. ☐ Since this application apppears to be in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under Ex parte Quayle, 1935 C.D. 11; 453 O.G. 213.

14. ☐ Other

EXAMINER'S ACTION

PTOL-326 (Rev. 2/93)

1. Claims 1-5, 12 and 13 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The previous rejection is repeated below for the sake of formality. At the time of issue, the examiner will entertain applicant's suggestion for the language of adjacent grooves increasing in diameter, if such changes are not made therebefore. It appears that the confusion stems from the phrase "constant radius measured from the central axis." It appears as if the **increase in radius of the grooves** should be measured from the central axis, **not the constance of the radius.**

In claim 1, second paragraph, the claims states that "said outer groove each having a generally constant radius measured from the central axis." Then the claims goes on to state that "each said outer groove has a greater radius than each adjacent outer groove closer to the first end." In the former phrase, the grooves are said to have a constant radius, and in the latter phrase the grooves close to the first end is said to have a greater radius. These two phrases seem to be conflicting.

Claim 12 is rejected since it depends from a cancelled claim. However, in view of applicant's remarks, it appears that it should depend from 11, thus the rejection below reflects the dependence from 11.

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. § 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless --
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1, 2, 11 and 12 are rejected under 35 U.S.C. § 102(b) as being anticipated by Rohn. Rohn discloses a male connector 5 having a central axis, a first axially outer end, a plurality of annular grooves 6, 7 having an arcuate cross-section, each groove laying in a respective plane perpendicular to the central axis, all of the grooves having the same radius and wherein each outer groove has a greater radius than the adjacent outer groove closer to the first end (left most end of the bearing assembly), a female connector 14 having grooves which correspond to the grooves of the male connector and a plurality of ball bearings in each race. All of the arcuate grooves have a straight line segment at the apex.

4. Claims 11 and 12 are rejected under 35 U.S.C. § 102(b) as being anticipated by Hofmann et al. Hofmann et al. discloses a first tube shaped member (unnumbered) mounted on shaft 1 having an arcuate groove with a straight line segment at the apex, a second tube shaped member also having a arcuate groove having

straight line segment, and a plurality of ball bearings therebetween.

5. The following is a quotation of 35 U.S.C. § 103 which forms the basis for all obviousness rejections set forth in this Office action:

> A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.
>
> Subject matter developed by another person, which qualifies as prior art only under subsection (f) or (g) of section 102 of this title, shall not preclude patentability under this section where the subject matter and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person.

6. Claims 1 and 2 are rejected under 35 U.S.C. § 103 as being unpatentable over Waters in view of Phillips or Ashton or SW '402.

Waters discloses the invention substantially as claimed. However, the bearing member is not a plurality of ball bearings in grooves as claimed.

Phillips and Ashton both teach the use of using a plurality of ball bearing as claimed, in a pipe swivel joint.

SW '402 teaches of different types of bearing elements

It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the plurality of ball bearings as seen in Phillips or Ashton or SW '402 to the swivel joint by Waters since both types of bearing elements are readily used in this area of endeavor, as evidence by the prior art. And, SW '402 teaches the equivalence of all different types of bearing elements.

7. Claim 11 is rejected under 35 U.S.C. § 103 as being unpatentable over Press or German reference 1,907,428. Both Press and German reference 1,907,428 disclose all the features claimed except the prior art shows the groove having the straight line segment on the inner surface of the female member and not on the outer surface of the male member. Although the prior art shows the grooves with the straight line segments located on the female, it would have been obvious to one of ordinary skill in the art to locate the groove on the male member for the purpose of providing a limited axial separation between the male and female members (as taught by Press col. 1, lines 49-62) since it appears that locating such a groove on either the male or female member would provide the same resulting movement between the members.

8. Claims 3-5, 14-17 would be allowable if rewritten to overcome the rejection under 35 U.S.C. 112 and to include all of the limitations of the base claim and any intervening claims.

9. Claim 13 would be allowable if rewritten or amended to overcome the rejection under 35 U.S.C. 112.

10. Applicant's arguments have been fully considered and the examiner's comments are as follows. Regarding arguments directed to Waters: 1) although the grooves c and c' are used for use of a split rings d and d', it appears well within the realm of obviousness to provide ball bearings in place of the rings as discussed in the rejection above. 2) Applicant argues that the grooves are decreasing rather than increasing with respect to a first end on each element. It should be noted that the "first end" in the claim is not structurally designated as one particular end. In this instance, end of male member b is interpreted to be the first end.

Applicant's arguments directed to Press or German '428 is deemed persuasive, thus is now rejected under 35 USC 103 above.

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Badger discloses a bearing having a similar "stepped" configuration. GB '984

discloses the increase in radius of the each adjacent bearing, but not on respective planes perpendicular from the central axis.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to H. Shackelford whose telephone number is (703) 308-2978.

hcs
January 18, 1996
HS
1/18/96

Randolph A. Reese
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SUPERVISORY PATENT EXAMINER
ART UNIT 351